

THE
AGRICULTURAL MUSEUM.

OMNIS FERET OMNIA TELLUS.

VIRG.

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For the Agricultural Museum.

NUMBER III.

When we consider the advantages which almost every nation has received from the introduction and culture of vegetables, not originally natives of its soil, we can scarcely hesitate for a moment in expressing our belief, that to this source is to be attributed more of our comforts and domestic enjoyments, as well as national wealth, than to any other. The introduction of the potatoe alone into the British dominions, has not only kept them from absolute famine during their present war, but has been the means of rapidly encreasing the population of Ireland, under all the restrictions and oppressions which jealousy could devise, and tyranny impose. The effect which the introduction of this one vegetable has had upon the population of that island, is sufficient to have calmed even Malthus's desponding spirit; it may have seduced him into the sin of matrimony, and eased his conscience as to overstocking the world. The seeds of comfort and support to man, scattered over the whole earth, were by a beneficent Creator intended for the common good of its inhabitants; we are endowed with intelligence to perceive, and industry to collect and propagate them, as the wants and progress of society shall require. Their introduction and culture, by adding to the common stock of useful articles, will be the means of still further enlarging our views of human nature, and our capacities for those enjoyments, which may render the world to our successors more of a Pa-

radise than it is to us, or has been to those who have existed on it in preceding times. As the terms of existence are less severe, and the blessings flowing from peace, industry and the cultivation of our faculties, incomparably greater than what fell to the lot of our more barbarous predecessors; we are morally bound, in our exertions for our descendents, to repay the obligations which we have received from the virtuous exertions of those who have preceded us. Every year of a good man's life will be marked by some act, the advantages of which shall be felt by his posterity. The tree he plants, the spring he opens, the house he builds, are valuable donations to posterity—they prove the utility of his existence, and he may look upon himself as an instrument in the hand of Providence, for diffusing his bounties. If therefore, we can be useful to ourselves whilst here, and benevolent to succeeding generations, let us lose no time in indecision and apathy, for the opportunity soon passes by. It is in society only that great objects can be accomplished; for what is beyond the power of the individual, can be effected with ease by the united exertions of many. So universally is this truth felt, that in every modern nation exist numerous societies, each of which is employed in the pursuit of useful knowledge, in some art, or science, connected with the public weal. To collect facts, to analyse or combine them, and diffuse the useful results of that labor, on any important subject, requires the leisure and talents of several individuals. If connected with botany and agriculture, it requires in addition, both pecuniary resources and a considerable lapse of time. Highly important to a nation, as respects its support, its strength and its commerce, it becomes an object of considerable importance to its government, especially when the interest of the government is that of the people. If Agriculture and Botany, claim and receive the national aid and individual patronage in countries full of people, and whose products are known,—is that

aid and that patronage less necessary here, where we possess almost unknown regions, and rely for our commercial prosperity in a great measure upon the productions of the soil. We possess a countless number and variety of forest trees, nutritious roots, fruits, grain, herbs and medicinal vegetables, of the advantages and value of which we are almost entirely ignorant. What can be more laudable, more useful, or more patriotic, than the collection of them into one focus, where they may be submitted to the test of science, and a knowledge obtained of their qualities, their habits, their culture and their value, where plants and seeds can be raised, and distributed over our country. Besides ascertaining the value of our own natural riches, we should receive the useful vegetables of every other region of the globe—the best mode of culture for each would by fair experiment be ascertained, and our farmers, planters, &c. could at once enter upon the culture of what appeared useful and profitable, without individually hazarding the expence and delay of experiment. The seeds and plants sent from the botanic garden and agricultural farm and nursery of the society could be depended upon, and those disappointments which so often check the spirit of improvement avoided. Our fruits would soon be all of the most valuable kinds, our garden vegetables good, our staple articles of culture for manufacture, for dying, for medicine or for food, increased in number, and of the best kinds, whilst our dwelling houses would in a few years be embosomed in the most agreeable shades, and surrounded by the most elegant of the flowering trees, with which nature has adorned the earth.

In point of situation for this Institution, the United States possesses none which can be compared to the district of Columbia. In a fine climate, and on a navigable river, which admits the reception of sea vessels of almost any burthen, it can receive from all other parts of the world, their choicest productions—the United States!

ges which they offer to the governments of Europe by cultivating them. The following is an extract from the prospectus of his work.

“ We know that North America contains in its vast forests an immense variety of trees ; those in the United States alone amount to nearly 150, whilst in Europe, we can scarcely enumerate 40. During my residence in the United States, I sent to the administration of France numerous parcels of seeds ; and I spent the greatest part of my time in collecting all the opinions acquired by experience, on the qualities of woods, and their different degrees of utility in the arts. I have been obliged also to take many journeys, to acquire a greater number of facts, in order to procure all the desired information. Beginning with the District of Maine, where the winter is as inclement and as long as in Sweden ; I crossed first all the Atlantic states to Georgia, where, for half the year, the heat is as intense as in the West-Indies. I travelled also more than 1556 kilometres, (400 leagues) from the north east to the south-west. I performed in different latitudes, five other journeys, in the interior of the country : the first, to the source of the river Kennebec ; the second, from Boston to Lake Champlain ; the third, from New-York to the Lakes Erie and Ontario ; the fourth, from New-York to the borders of the rivers Monongahela, Alleghany, and Ohio ; and the fifth and last, from Charleston in South Carolina to the sources of the rivers Savannah and Oconee. In my first journey, along the coast, I stopped in the principal sea ports, in order to visit the ship-yards, and in general all the shops of workers in wood. I made it a point to consult the most skillful native workmen, and more particularly those from Europe, whom I found capable of judging of the respective qualities of the different woods found in the two continents. I shall make known those of America, which are the object of a considerable commerce between the central, southern, and northern states, and those which are ex-

ported to the West Indies and to Europe, as well as the interior parts of the country, whence they are derived, and the sea ports, from which the different exportations take place. I will also point out the best kinds of trees for fuel, and those the barks of which are used for tanning, and give their comparative prices.

“In travelling from the north to the south, I carefully observed, the place of growth and disappearance, of different species of trees in consequence of a milder temperature, or of a marked change of soil. I gathered in the different states of the Union, all the common names, to annex them to the scientific appellations. I observed the forests, either as they presented a primitive appearance, or as changed by the vicinity of civilized or domestic animals, the influence of which diversifies so rapidly the face of nature. Such are the principal objects, which attracted my attention, and of which I intend to give an account. I will also faithfully point out the species of trees, which I think useful to propagate for the amelioration of the European forests; and those that only deserve to be introduced into parks and gardens, on account of the beauty of their foliage.

“Such is the outline of the researches to which I have devoted myself, and the result of which I have the honor to offer to the public. I thought that the manner in which I have viewed my subject, in directing my observations to a point of general utility, and which had not been done before, would secure my work in Europe and the United States, a more favourable reception than if I had treated it in a scientific point of view.

“The work will be composed of twenty-five numbers. But if, contrary to my expectations, it does not meet with that encouragement, which I hope the importance of the subject entitles it to, and if at any time I am obliged to suspend my publication, I announce to my sub-

scribers, that I have adopted a plan of keeping the genera separate, so that one, two, or three numbers will contain a complete history of one genus of trees, as pines, nut-bearers, maples ; so that they will possess so many complete and separate treatises, which will also give the facility of procuring the particular genera which they may desire. One number will be published every month, and be composed of six coloured plates, with descriptions to each. The plates are engraved from drawings by Messrs. Redoute and Bessa, eminent painters in natural history. The best will be in royal octavo, and printed on very fine paper. The price of each number will be 13 francs and 50 centimes, (\$ 2 50.) An edition in English will be published in Philadelphia, accompanied by plates precisely similar to the French edition, with this difference only, that the common names of trees will be given in place of the botanical ones."

The editor is well acquainted with Mr. Michaux ; has witnessed his assiduity in collecting information from workmen in Philadelphia, and has no doubt of his work proving eminently useful. The execution of the plates will be in the highest style of elegance. Every college and public school ought to possess a copy of this work, and also of the superb work by the father of Mr. Michaux, on the American oaks, which may be bought for the low price of \$ 10. But our seminaries of education unfortunately deem such knowledge degrading, and set a value only on those branches of learning, which are inapplicable to the common purposes of life, or to the business of the world, and which, to nine tenths of those who get a smattering of it, is totally useless, and forgotten after they leave college or school.

Archives of useful Knowledge.

The Editor of the Agricultural Museum is authorized in a letter from the Editor of the Archives, to add, that since the publication of the preceding notice, the first

number of the work has arrived, and surpasses expectation. The paper is very fine, and the printing done in a superior manner; but the plates are unequalled by any thing that ever has reached the United States, and probably are not excelled by any work that ever was published, either for accuracy of delineation, or beauty of colouring. The first number is confined to the description of ten species of pines, and four of the genus *Abies*, viz. the black (double) spruce, the white (single) spruce, the hemlock spruce, and the silver fir. The description occupies 148 pages royal 8vo. Immediate measures will be taken to publish the work in Philadelphia, in English, and it is hoped it will be generally read. Doct. Mease would have it repeated, that every public school in the United States ought to possess a copy of the work, and also of that of the author's father, on the American oaks. Every gentleman, particularly those in the country, ought to subscribe to this work on the forest trees, that he may acquire a knowledge of their uses, and their scientific appellations, promote the cultivation of a refined taste, and excite a love for the fine arts in the younger part of his family. The plates will also afford the most perfect copies for drawing and colouring that can be found. The price of the French copy is only \$ 6. Had the work been published in London, the price would have been \$ 16.

On the same authority it is announced, that the second volume of the Memoirs of the Agricultural Society of Philadelphia will be out in a few days. It will contain two papers on the slabbers in horses and cattle, from eating second crop grass and hay, particularly of clover. The evil is beginning to be very serious, and it behooves us to find out the cause and the remedy.

The Editor of the Agricultural Museum will be thankful to his friends in the country for such information on the subject, as they may possess or be able to obtain, that it may be communicated to the Editor of the Archives, who intends to give a paper on the complaint in his next number.

RICHMOND, JANUARY 24.

The following ARTICLES constituting the PLAN of an AGRICULTURAL SOCIETY, were agreed to, a few days past, by a number of Gentlemen assembled at the Swan Tavern.

CONSIDERING Agriculture as a subject of the deepest interest to this country, and believing that Agricultural Societies, established on proper principles, by affording a stimulus to exertions, and by diffusing information, tend to increase the national stock of knowledge in that most useful science, a number of gentlemen assembled in the city of Richmond, have determined to associate themselves together, and to form a Society for the purpose of promoting Agriculture.

Art. 1. When the number of Subscribers to this Association shall amount to twenty ———, the Society shall be considered as formed, and the Chairman of the Committee appointed to obtain Subscriptions, shall call a meeting for the purpose of electing officers, and of forming such other and additional rules as may be deemed conducive to the objects of this Association. The Society shall be styled, *The Richmond Society for promoting Agriculture.*

2. The Society shall have a President, a Vice President, a Treasurer, and a Secretary, and an assistant Secretary, when the increase of business, shall require it. All of whom shall be annually elected by a majority of the members present at the stated meeting of the Society in January; the persons so elected to continue in office one year; and until others shall be chosen in their stead. In case of vacancy, by death, resignation, or otherwise, the same may be supplied by a new election to be made at any stated meeting of the Society; the person thus newly elected to serve the remainder of the year.

3. A quorum for business shall consist of at least five members, including the President or Vice President, or

the person chosen President pro tempore, according to the provision of the 4th article,

4. At all meetings of the Society, the President shall exercise the usual duties of that office. He shall also have power to call special meetings of the Society by notice published in at least one of the city newspapers. In his absence the same duties shall be performed by the Vice President. If at any meeting both the President and Vice President be absent, the members present, being a quorum to constitute a regular meeting for the business to be transacted, may choose a Vice President for that meeting.

5. The Treasurer shall keep the accounts methodically stated in the books of the Society, and, when required, shall produce them for inspection. At the last meeting of every year, and also whenever his office ends, he shall produce a fair and regular account of all receipts and payments, and deliver it, together with those books and all the property of the Society in his hands, to his successor in office, or to the order of the Society.

6. The Secretary and his assistant shall have in charge all the books and papers of the Society, and keep the same in neat order. They shall also register all letters which shall be written by the Committee of Correspondence, or by themselves by order of the Committee.

7. At the annual meeting of the Society in January, shall be chosen a Committee of Correspondence, to consist of five members, any three of whom to be a quorum, for the purpose of corresponding with any Society or person touching the objects which this Society has in view. The same members shall also be a Committee of Accounts to receive and adjust all claims against the Society, for its contingent expences; and the President shall give order on the Treasury, for the payment of them.

8. The stated meetings of the Society shall be on the first Tuesday of every month.

9. The attention of the Society shall be confined to agriculture and rural affairs.

10. The members of the Society shall be distinguished into *resident* and *honorary* members. Those who reside within shall be considered as resident members, and all others as honorary members, who, as well as the members of all other Agricultural Societies, are hereby invited to assist at our meetings whenever they come to Richmond. Strangers who desire to be present as auditors may be introduced by a resident member.

11. After the Society shall be formed, new members whether resident or honorary, shall be elected by ballot; and the Secretary shall issue notice, to each person of his being elected, to the following purport:

“ On the day of 18 A. B. of was elected a member (or honorary member) of the Richmond Society for promoting Agriculture; the Society invite his assistance.

C. D. Secretary.”

12. All elections and appointments shall be between eight and nine in the evening, at one of the stated meetings of the Society. And no person shall be elected a member, unless, at a preceding stated meeting, he shall have been openly proposed, and such nomination duly entered on the minutes of the Society. The nomination and election to be in the absence of the candidate.

13. For the purpose of defraying the necessary expenses of the Society, each member shall on his admission, and annually afterwards, pay to the Treasurer a contribution of five dollars. This contribution shall be considered as payable on or before the last day of December in every year. And at the first meeting in January in every year, the Treasurer shall lay before the Society a list of the members, specifying who have

and who have not paid their contributions; and any member whose contribution shall be more than one year in arrears, after the same shall become payable as aforesaid, provided payment thereof has been personally demanded by the Treasurer or Collector; shall be considered as withdrawing from the Society, and the same shall be entered on the minutes.

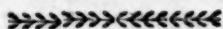
14. New rules, or alterations in the old rules, shall be proposed and entered on the minutes at a preceding stated meeting, and may at a subsequent stated meeting be made with the assent of not less than two thirds of the members present.

15. The funds of the Society, unless for the ordinary contingent expences, shall be disposed of only at a special stated meeting, after a proposition therefor, shall have been made at a previous stated meeting.

16. At the first meeting of the Society, in January, in every year, there shall be a revision of the then subsisting rules, and the same shall stand confirmed, unless revoked or altered by two thirds of the members present.

17. The particular objects of this Society are, to obtain and communicate useful knowledge respecting Agriculture, and to stimulate exertions and inventions in that important science, by all the means which may be in their power, and especially by proposing prizes and premiums when their funds shall enable them so to do.

Richmond Enquirer.



On the Analysis of Soils, as connected with their Improvement. By HUMPHREY DAVY, Esq. F. R. S.

From the Communications of the Board of Trade.

Utility of Investigations relating to the Analysis of Soils.

Continued from page 239.

IV. *Method of collecting Soils for Analysis.*

In cases when the general nature of the soil of a field is to be ascertained, specimens of it should be taken from different places, two or three inches below the sur-

face, and examined as to the similarity of their properties. It sometimes happens, that upon plains the whole of the upper stratum of the land is of the same kind, and in this case, one analysis will be sufficient; but in vallies, and near the beds of rivers, there are very great differences, and it now and then occurs that one part of a field is calcareous, and another part siliceous; and in this case, and in analogous cases, the portions different from each other should be separately submitted to experiment.

Soils when collected, if they cannot be immediately examined, should be preserved in phials quite filled with them, and closed with ground glass stoppers.

The quantity of soil most convenient for a perfect analysis, is from two to four hundred grains. It should be collected in dry weather, and exposed to the atmosphere till it becomes dry to the touch.

The specific gravity of a soil, or the relation of its weight to that of water, may be ascertained by introducing into a phial, which will contain a known quantity of water, equal volumes of water and of soil, and this may be easily done by pouring in water till it is half full, and then adding the soil till the fluid rises to the mouth; the difference between the weight of the soil and that of the water will give the result. Thus, if the bottle contains four hundred grains of water, and gains two hundred grains when half filled with water and half with soil, the specific gravity of the soil will be 2, that is, it will be twice as heavy as water. and if it gained one hundred and sixty five grains, its specific gravity would be 1.625, water being 1000.

It is of importance, that the specific gravity of a soil should be known, as it affords an indication of the quantity of animal and vegetable matter it contains; these substances being always most abundant in the lighter soils.

The other physical properties of soils should likewise be examined before the analysis is made, as they denote, to a certain extent, their composition, and serve as guides in directing the experiments. Thus siliceous soils are generally rough to the touch, and scratch glass when rubbed upon it; aluminous soils adhere strongly to the tongue, and emit a strong earthy smell when breathed upon; and calcareous soils are soft, and much less adhesive than aluminous soils.

V. MODE OF ASCERTAINING THE QUANTITY OF WATER OF ABSORPTION IN SOILS.

Soils, though as dry as they can be made by continued exposure to air, in all cases still contain a considerable quantity of water, which adheres with great obstinacy to the earths and animal and vegetable matter, and can only be driven off from them by a considerable degree of heat. The first process of analysis is, to free the given weight of soil from as much of this water as possible, without in other respects affecting its composition; and this may be done by heating it ten or twelve minutes over an Argand's lamp, in a bason of porcelain, to a temperature equal to 300 † Fahrenheit; and in case a thermometer is not used, the proper degree may be easily ascertained, by keeping a piece of wood in contact with the bottom of the dish; as long as the colour of the wood remains unaltered, the heat is not too high; but when the wood begins to be charred, the process must be stopped. A small quantity of water will perhaps remain in the soil even after this operation, but it always affords useful comparative results; and if a higher temperature were employed, the vegetable or animal matter would undergo decomposition, and in consequence the experiment be wholly unsatisfactory.

The loss of weight in the process should be carefully noted, and when in four hundred grains of soil it reaches as high as 50, the soil may be considered as in the

† In several experiments, in which this process has been carried on by distillation, I have found the water that came over pure, and no sensible quantity of volatile matter was produced.

greatest degree absorbent, and retentive of water, and will generally be found to contain a large proportion of aluminous earth. When the loss is only from 20 to 10, the land may be considered as only slightly absorbent and retentive, and the siliceous earth as most abundant.

VI. OF THE SEPARATION OF STONES, GRAVEL, AND VEGETABLE FIBRES FROM SOILS.

None of the loose stones, gravel, or large vegetable fibres should be divided from the pure soil till after the water is drawn off; for these bodies are themselves often highly absorbent and retentive, and in consequence influence the fertility of the land. The next process, however, after that of heating, should be their separation, which may be easily accomplished by the sieve, after the soil has been gently bruised in a mortar. The weights of the vegetable fibres or wood, and of the gravel and stones, should be separately noted down, and the nature of the last ascertained; if calcareous, they will effervesce with acids; if siliceous, they will be sufficiently hard to scratch glass; and if of the common aluminous class of stones, they will be soft, easily scratched with a knife, and incapable of effervescing with acids.

VII. SEPARATION OF THE SAND AND CLAY, OR LOAM, FROM EACH OTHER.

The greater number of soils, besides gravel and stones, contain larger or smaller proportions of sand of different degrees of fineness; and it is a necessary operation, the next in the process of analysis, to detach them from the parts in a state of more minute division, such as clay, loam, marle, and vegetable and animal matter. This may be effected in a way sufficiently accurate, by agitation of the soil in water. In this case, the coarse sand will generally separate in a minute, and the finer in two or three minutes, whilst the minutely

divided earthy, animal, or vegetable matter will remain in a state of mechanical suspension for a much longer time; so that by pouring the water from the bottom of the vessel, after one, two, or three minutes, the sand will be principally separated from the other substances, which, with the water containing them, must be poured into a filter, and after the water has passed through, collected, dried, and weighed. The sand must likewise be weighed, and their respective quantities noted down. The water of lixiviation must be preserved, as it will be found to contain the saline matter, and the soluble animal or vegetable matters, if any exist in the soil.

VIII. EXAMINATION OF THE SAND.

By the process of washing and filtration, the soil is separated into two portions, the most important of which is generally the finely divided matter. A minute analysis of the sand is seldom or never necessary, and its nature may be detected in the same manner as that of the stones or gravel. It is always either siliceous sand, or calcareous sand, or a mixture of both. If it consist wholly of carbonate of lime, it will be rapidly soluble in muriatic acid, with effervescence; but if it consist partly of this substance and partly of siliceous matter, the respective quantities may be ascertained by weighing the residuum after the action of the acid, which must be applied till the mixture has acquired a sour taste, and has ceased to effervesce. This residuum is the siliceous part: it must be washed, dried, and heated strongly in a crucible; the difference between the weight of it and the whole, indicates the proportion of calcareous sand.

[To be continued.]

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